PRACTICE ABSTRACT NO. 28

Living mulch of lucerne for the cultivation of soft wheat in organic farming

Problem

Organic agriculture prohibits the use of synthetic chemicals and limits the use of inputs, exposing it to limiting factors such as weeds and nitrogen availability.

Solution

Legumes living mulches, if well regulated, are useful in organic farming. They increase nitrogen supplies to crops, improve weed control and enable environmental benefits.

Outcome

A living mulch of lucerne increases the protein content and the yield of organic wheat, provided that biomass regulation of the living mulch can be effectively achieved mechanically.

Applicability box

Geographical coverage

Soft wheat growing areas

Application period

Before sowing wheat & spring

Required time

N/A

Period of impact

N/A

Equipment

Real Time Kinematic (RTK) guidance and precision crushing tool

Practical recommendations

The first step is to sow the cover crop in a host crop at appropriate spacing. This is 30 cm for Arvalis trials with the available equipment. Wheat will then be sown either direct seeded or after a light tillage in the lucerne inter-row. The wheat rows will also be spaced 30 cm apart and located halfway between the lucerne rows. Real Time Kinematic (RTK) guidance is required to achieve this precision.

Lucerne goes into dormancy in November, and it is not very competitive with wheat until March. In spring, it is important to regulate the living mulch. In organic farming, this is achieved by mechanical crushing, located on the lucerne row and leaving intact the wheat. Two to three passes throughout the field seem necessary.

Picture 1: An experimental tool has demonstrated the feasibility and value of regularly crushing lucerne between the rows of wheat as long as the wheat is not sufficiently developed to withstand the competition.

Picture 2: After 3 crushing steps of lucerne carried out between the "first node" and "early heading" stages of the wheat, the lucerne is growing without threatening the productivity of the wheat

Practical testing/Farmers' experiences

This method should be part of a crop rotation. At some point in time, the lucerne will release less nitrogen or be subjected to pest.

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Further information

- Video : Des outils pour gérer un couvert permanent et vivant en agriculture biologique - ARVALIS-infos.fr, https://www.youtube.com/watch?v=8sXilCxIvSk
- Hélias R., Lhermitte M., 2019. Des couverts vivants aussi en AB !. Perspectives Agricoles, 462, 64-66.
- Labreuche J., Edeline P., Sauzet G., 2017. Des couverts à durée indéterminée. Perspectives Agricoles, 443, 38-41.
- Website: https://www.remix-intercrops.eu/
- Facebook : https://www.facebook.com/RemixIntercrops/
- Facebook : https://www.facebook.com/watch/?v=2770718666489128
- Wiki: http://vm193-134.its.uni-kassel.de/En.DiversiWiki/index.php/Mixture_practice_for_farmers_and_advisors
- Check the Organic Farm Knowledge Platform for more practical recommendations.

About this abstract

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ReMIX is a H2020 multi-actor project that will allow designing cropping systems based on agro-ecology for the benefit of farmers and the whole EU agricultural community. ReMIX will exploit the benefits of species mixtures to design more diversified and resilient agro-ecological arable cropping systems. Based on a multi-actor approach, ReMIX will produce new knowledge that is both scientifically credible and socially valuable in conventional and organic agriculture. The project will tackle practical questions and co-design ready-to-use practical solutions. The project will span from the specification of end-user needs and the co-design of in-field and on-farm experiments to demonstrations with evaluation of new varieties and practices. ReMIX will contribute to the adoption of productive and resilient agricultural systems. The project is running from May 2017 to April 2021

Website: www.remix-intercrops.eu

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